



Fighting Financial Crimes - Deep Dive with Graph & ML



Today's speakers



Graham Ganssle, Ph.D.

HEAD OF DATA SCIENCE, EXPERO

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Scott Heath

FRAUD, GRAPH & ANALYTICS

✉ scott.heath@expero.com



Topics

2021 (AML) :
What does the future hold?

2021 - What will the Role of ML, GRAPH & Humans be?

How - Graph + Machine Learning combine
(Graham Ganssle, Ph.D. - 25 min)

Anti-Fraud with Graph in Action

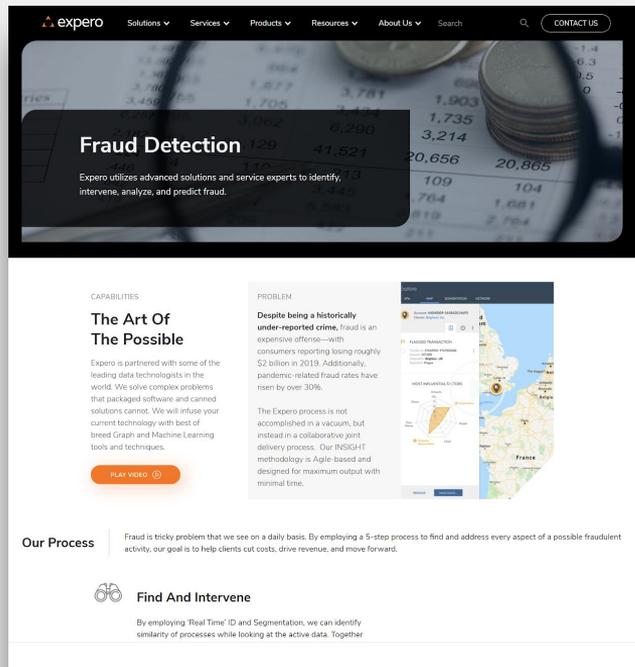
How does current Technology address these issues? Demos of Art of the Possible
(Scott Heath - 25 min)

Q&A

(5 Min)



Expero Resources



The screenshot shows the Expero website with a navigation bar at the top containing 'Solutions', 'Services', 'Products', 'Resources', 'About Us', and 'Search'. A 'CONTACT US' button is in the top right. The main content area features a 'Fraud Detection' section with a dark background and white text: 'Expero utilizes advanced solutions and service experts to identify, intervene, analyze, and predict fraud.' Below this is a section titled 'The Art Of The Possible' with a sub-header 'CAPABILITIES' and a 'PLAY VIDEO' button. To the right is a 'PROBLEM' section with a map of France and text about under-reported crime. At the bottom left is an 'Our Process' section with a sub-header 'Find And Intervene' and a brief description of the process.

Webinars

- Anti Fraud, AML etc
<https://www.experoinc.com/resources/gallery/online-seminars>

Demos

- Investigator Workbench, Dashboards, Case Mgt etc.
<https://www.experoinc.com/resources/gallery/demos>

Blogs

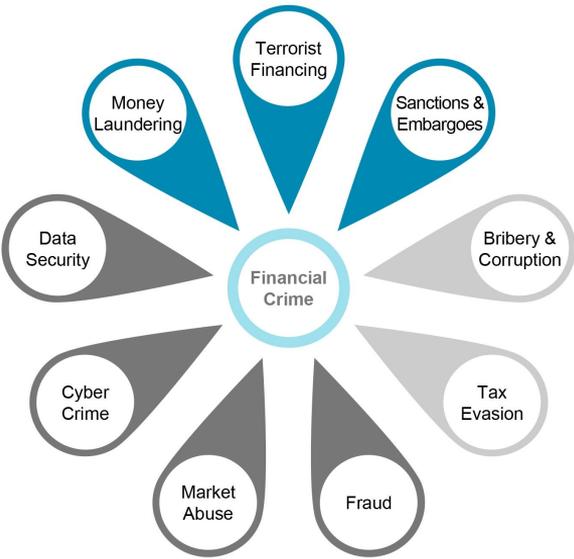
- ML and Fraud including graph embedding, graphML, etc
<https://www.experoinc.com/resources/blog>





UNODC

United Nations Office on Drugs and Crime

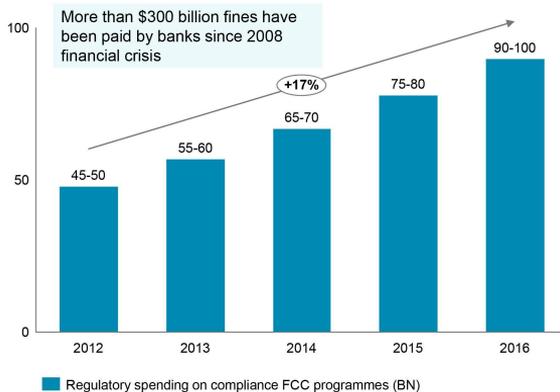


The United Nations Vienna 1988 Convention Article 3.1 defines **money laundering** as “the conversion or transfer of property, knowing that such property is derived from any offense(s), for the purpose of concealing or disguising the illicit origin of the property or of assisting any person who is involved in such offense(s) to evade the legal consequences of his actions”.

Three stages of Money Laundering:

- **Placement:** Moving funds from direct association with crimes
- **Layering:** Disguising the trail to foil pursuit
- **Integration:** Making money available to criminals from what seem to be legitimate sources

<https://www.unodc.org/unodc/en/money-laundering/overview.html>



Total aggregated bank fines in 2020	\$14.21B
Most common violation	AML breaches

<https://finbold.com/bank-fines-2020/>

Anti-Money Laundering Considerations

NOT SMALL \$

- UNODC: Money laundering is "2–5% of global GDP, or \$800B to \$2T in current USD."

NOT JUST BANKS

- Retail, casinos, real estate, human and drug trafficking, terrorists, and others

NOT JUST RISK SCORING

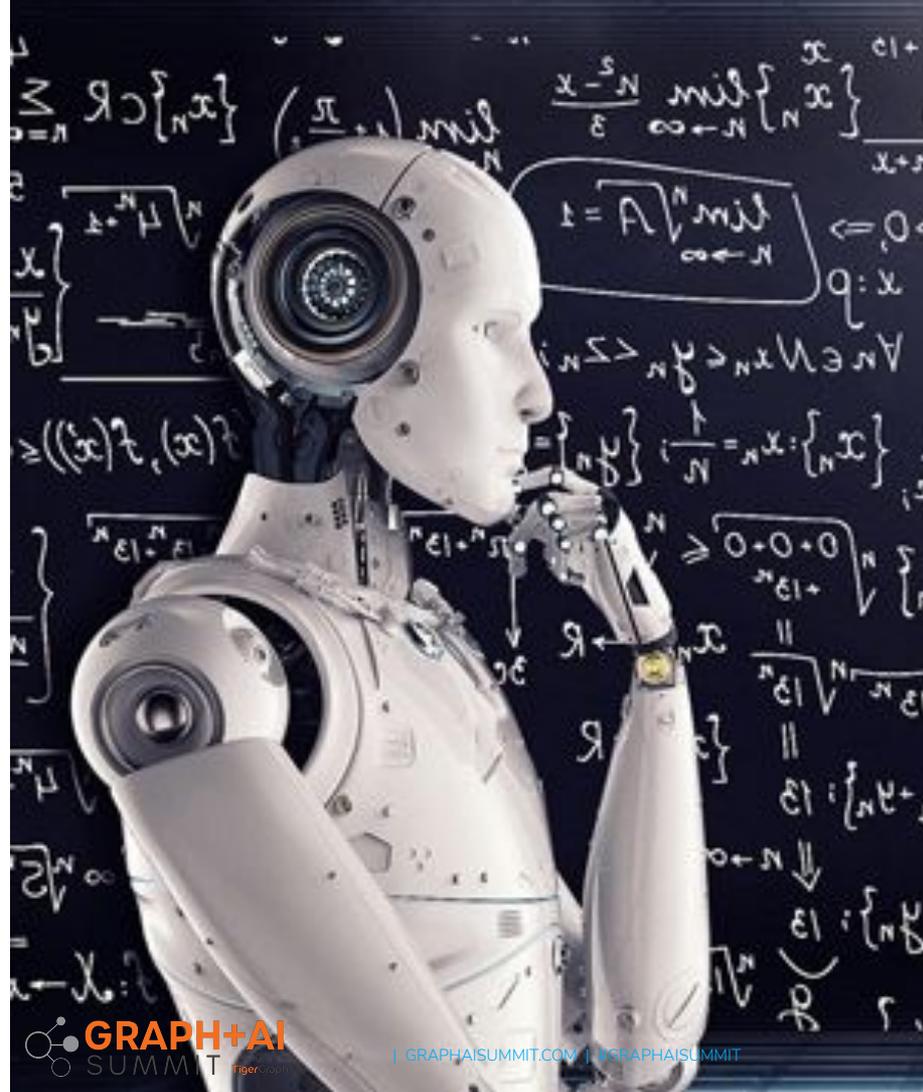
- Understanding *connected behavior* in space/time is needed to find financial crimes

NOT JUST KYC

- Effective investigation now needs ***KNOW YOUR CUSTOMER'S CUSTOMER***

NOT JUST HUMANS

- Graph analytics, machine learning and artificial intelligence all help investigators do even better



What will Anti-Fraud in 2021 Look Like? Data Science, Graph And Domain Expertise

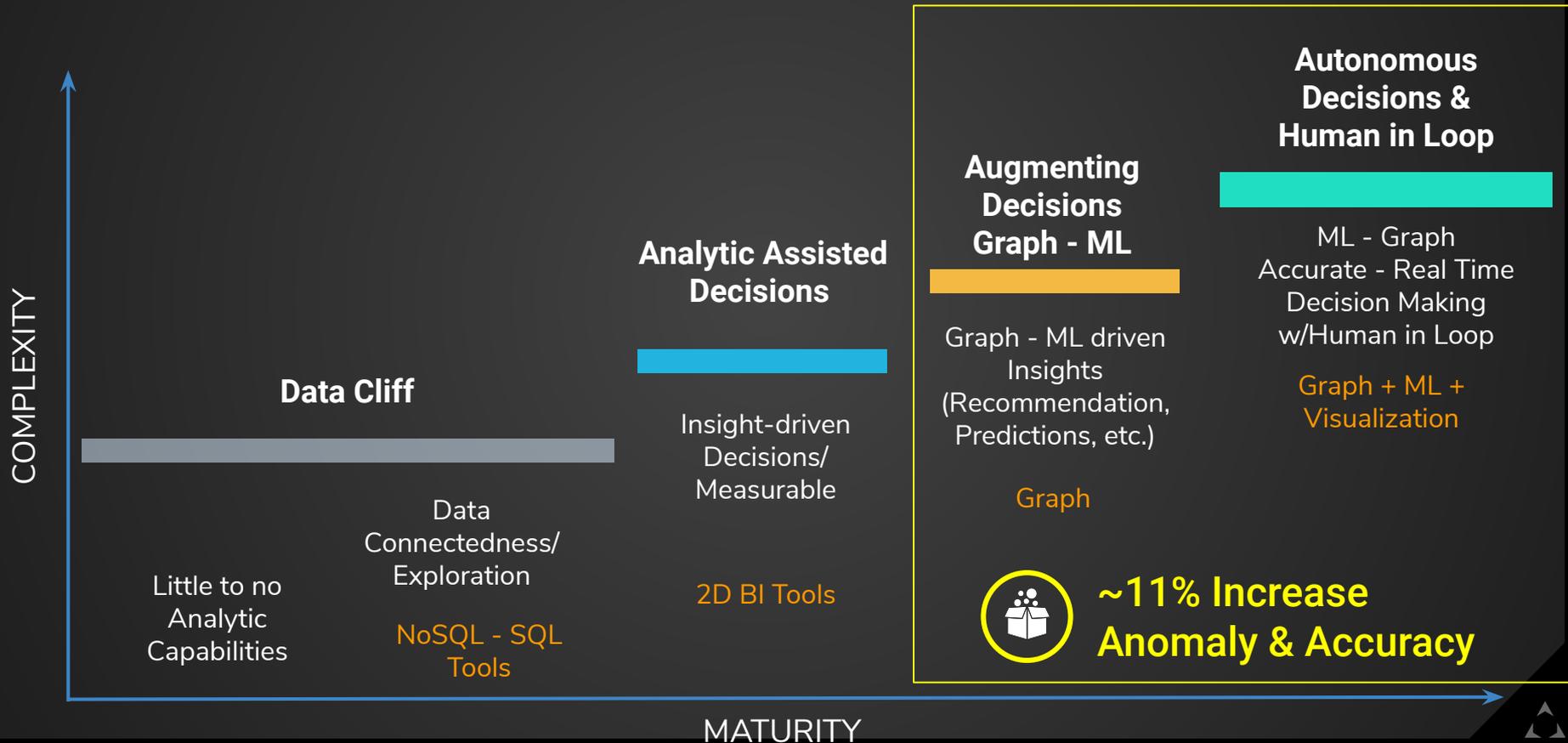
why is data science + ML interesting in this domain?

Resources:

[ML Blog Posts](#)

[ML Gallery](#)

Maturity Toward Graph, Visibility + Human in the Loop



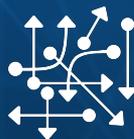
Often, **failures in Fraud Data Science** aren't due to lack of model training data or ML quality - rather scale and delivering repeatable outcomes.

Data Science PROJECTS (e.g, ML, RL, NLP, etc.)

Often data science outcomes are Siloed solutions generated as experiments - "It works in my Jupyter notebook."



Not Scalable



Unpredictable



Data PRODUCTS

Repeatable & scalable version of Data Science outcomes ready for business use - embeddable ML, RL, NLP, etc.

VS.



Scalable



Measurable

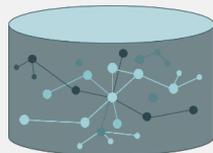


Consistent



CI/CD

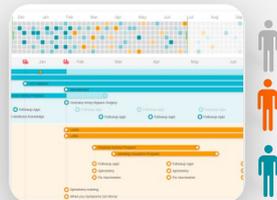
Logical Flow



PRESENTATION

LOGIC

DATA



TIGERGRAPH TOOLKIT

Source Data

Structured and unstructured data (e.g. social media, raid data)
SQL, Triple Store, Hadoop, etc



PERSON
Name / DOB / Products

PERSON
Name / DOB / Address

COMPANY
Shipper / Phone Number

COMPANY
Shipper / Address

Data Mapping - Source Map

Extract & transform or Create 'Map' of data - **Data Mapped**

MAP TO SOURCE

Source Data Schema Denormalized & Standardized Data

● >>>>>>>> ●

● >>>>>>>> ●

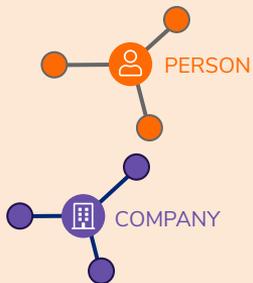
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Entity Resolution (ER) Master Data Mgt

Resolve and persist entities within and across datasets - Use ML or Custom Algorithms

MACHINE LEARNING



Data, Search & Analytics Platform

A comprehensive data storage, search, and analytics platform - massively scalable



Application Programming Interfaces (API)

Set of methods, tools, and protocols to build software applications

REST | API
MACHINE LEARNING

User Interface (UI)

Visualization tool enabling mission users to perform self-service data analysis

OPEN SOURCE
& CUSTOM



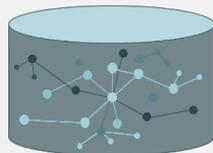
APIs



**CUSTOMER 360
SUPPLY CHAIN**



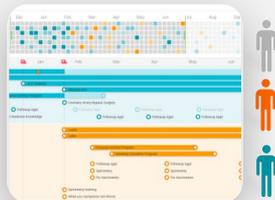
Entity Resolution



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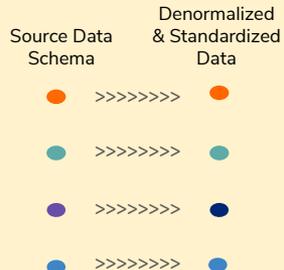


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- PERSON
Name / DOB / Address
- COMPANY
Shipper / Phone Number
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Shipper / Address

Data Mapping - Source Map

Extract & transform or Create 'Map' of data - **Data Mapped**

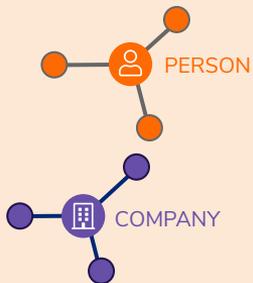
MAP TO SOURCE



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EXPERO SOLUTION

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GRAPH



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MICROSERVICE MACHINE LEARNING



User Interface (UI)

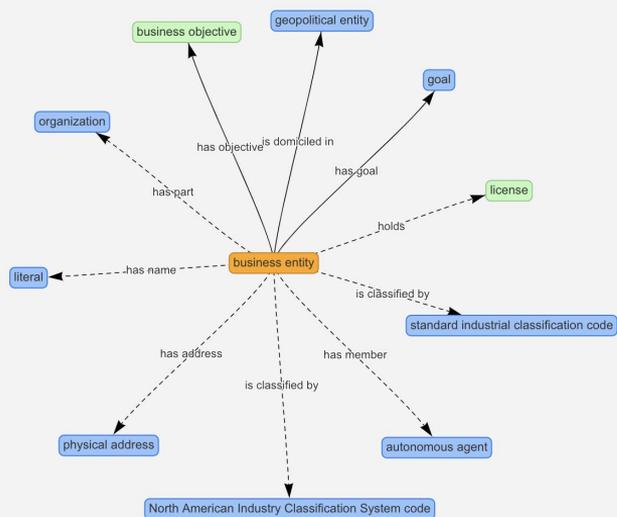
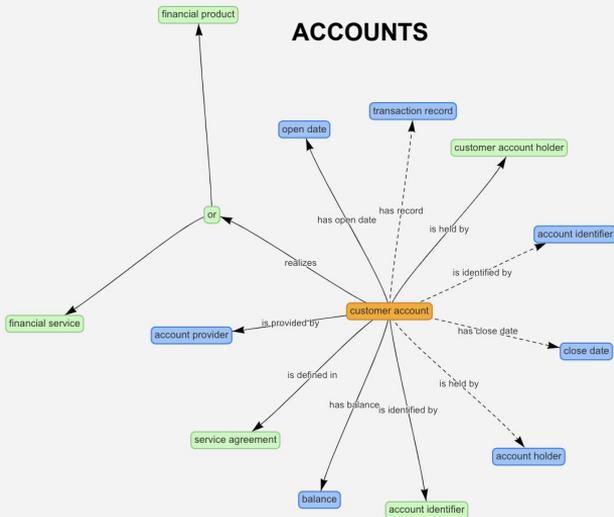
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OPEN SOURCE & CUSTOM



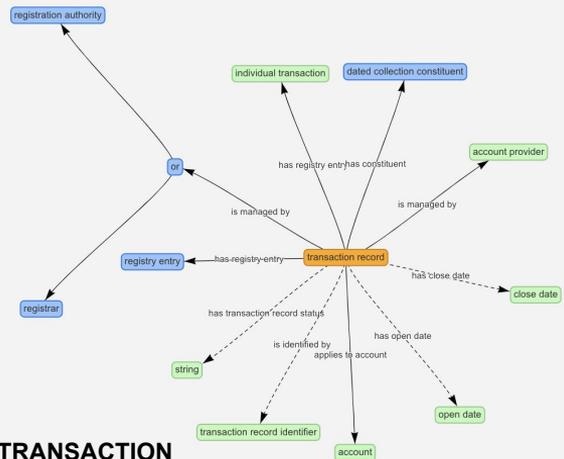
FIBO - DETAIL

ACCOUNTS

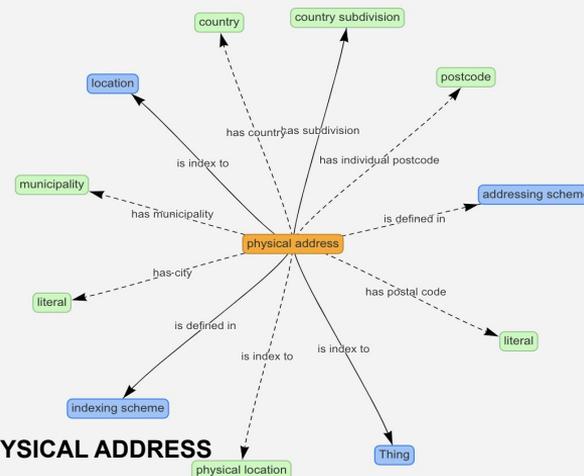


CORPORATIONS/BUSINESS ENTITY

TRANSACTION



PHYSICAL ADDRESS



Glossary

label

has currency

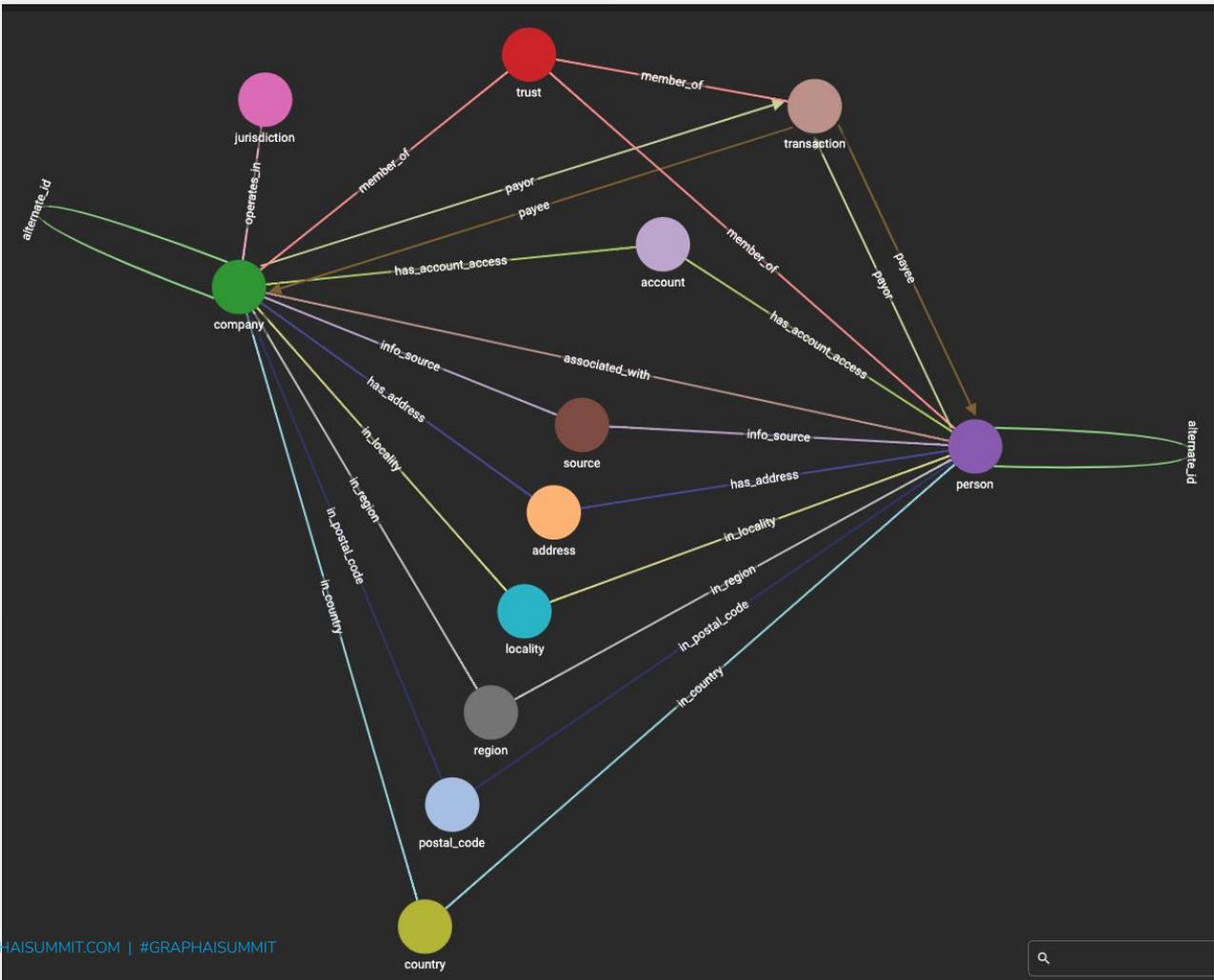
definition

specifies the medium of exchange value in which something, such as a monetary amount is denominated

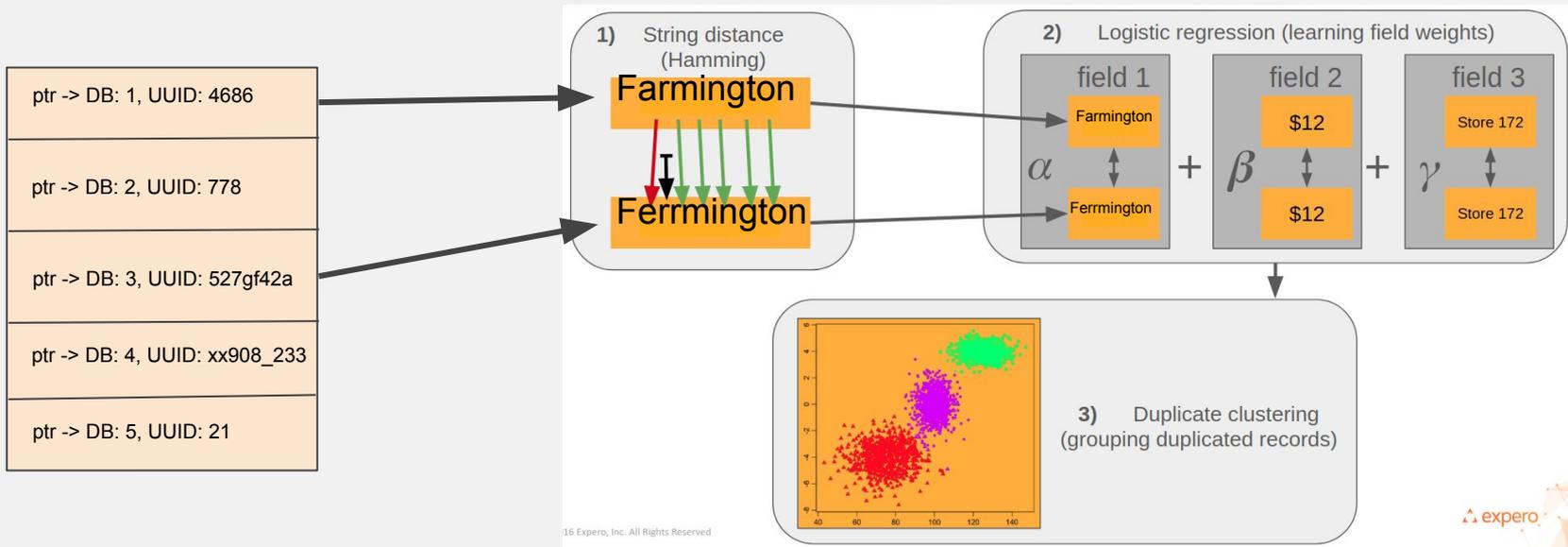
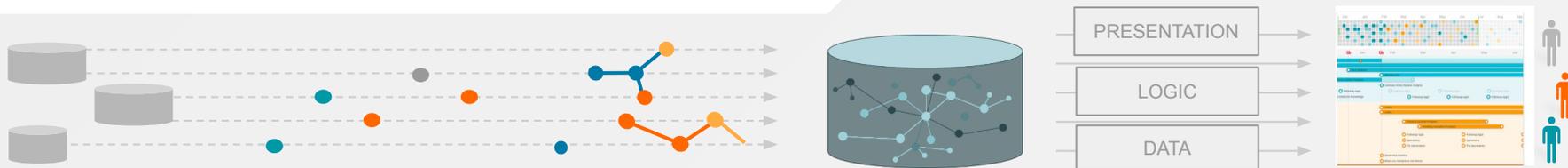
HAS CURRENCY



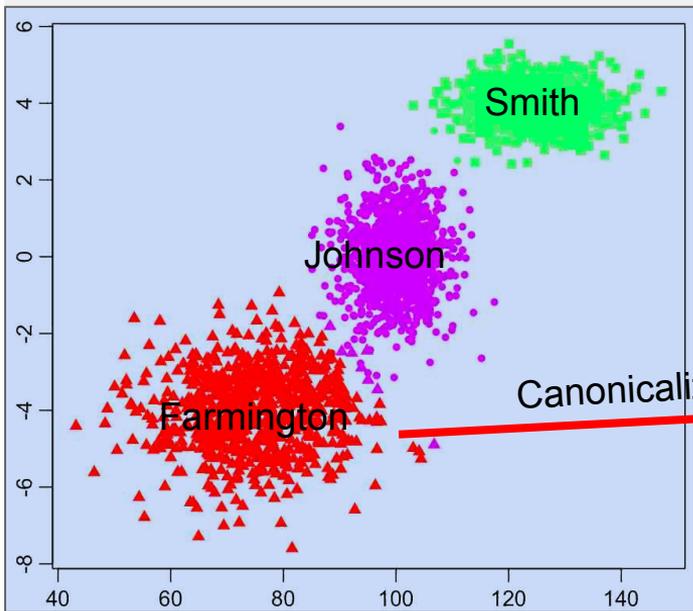
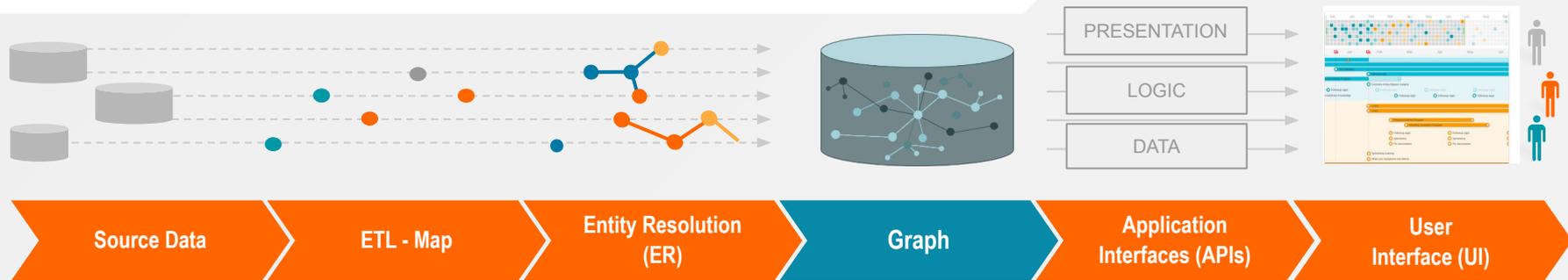
FIBO Extraction for AML Detection and Prevention



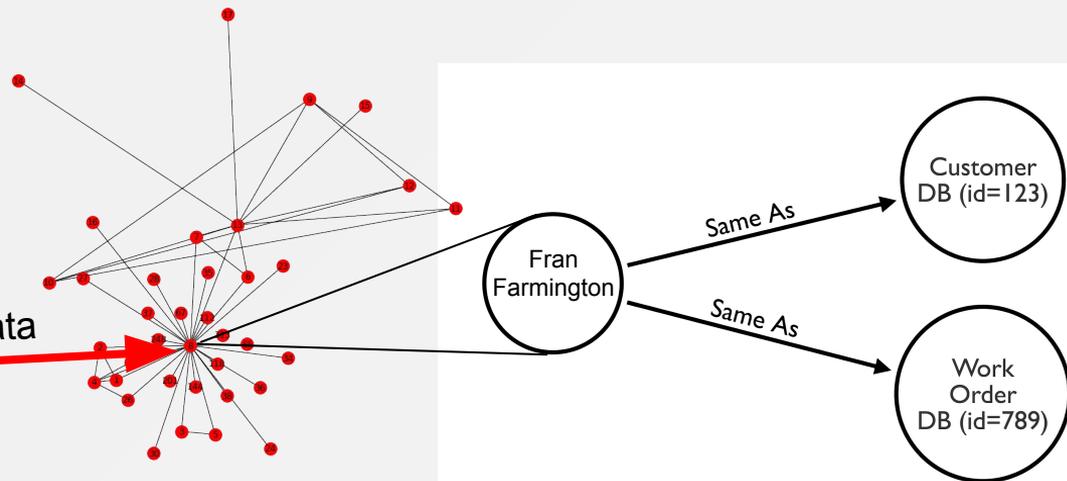
Graph + ML = Increases % of Match



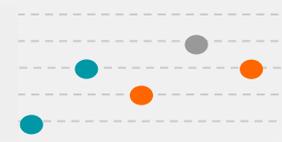
Graph Connections - Higher Order Connections



Canonicalize Data



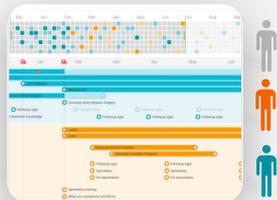
Entity Matching



PRESENTATION

LOGIC

DATA



EXPERO SOLUTION

Source Data

Structured and unstructured data (e.g. social media, raid data)
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PERSON
Name / DOB / Products

PERSON
Name / DOB / Address

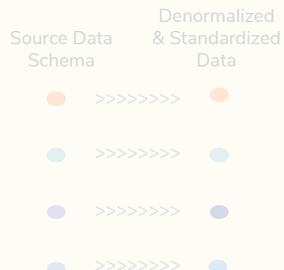
COMPANY
Shipper / Phone Number

COMPANY
Shipper / Address

Data Mapping - Source Map

Extract & transform or Create 'Map' of data - Data Mapped

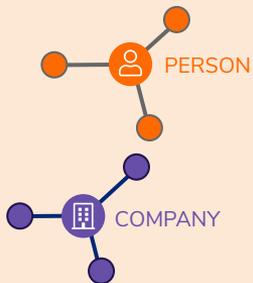
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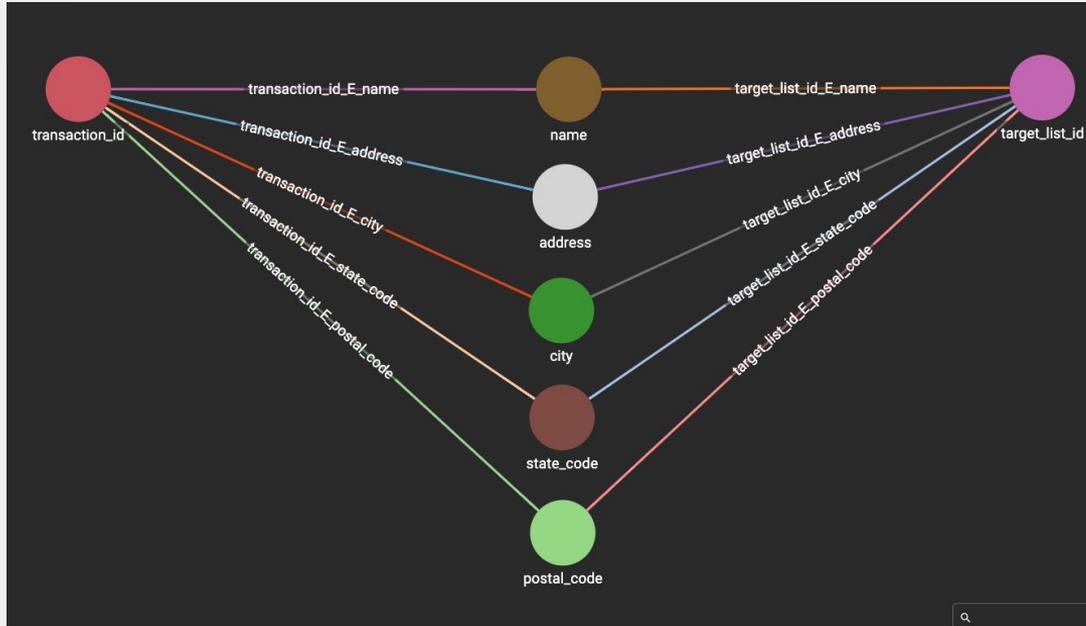
User Interface (UI)

Visualization tool enabling mission users to perform self-service data analysis

OPEN SOURCE & CUSTOM



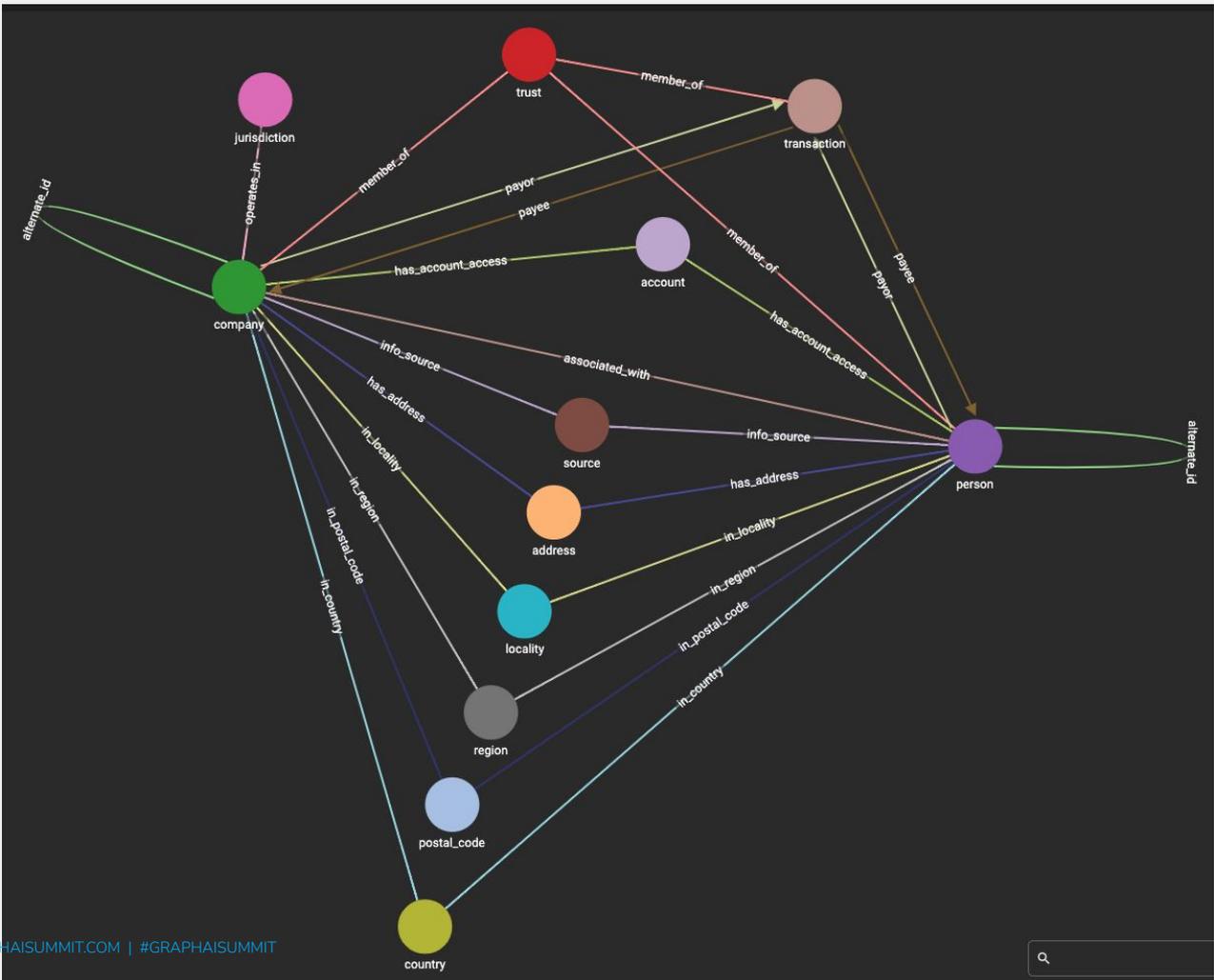
FIBO for Entity Matching to Known Bad/Good Actors Lists



1. Perform fuzzy matching on multiple fields.
2. Score based on number of matches across nodes.
3. Generate alternate_id edges for companies and persons.



FIBO Extraction for AML Detection and Prevention



Machine Learning and Algorithm Support

Use Both to Increase % Accuracy

GRAPH

Clustering

Betweenness

Similarity

Degree

Page Rank

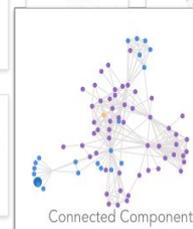
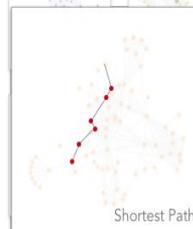
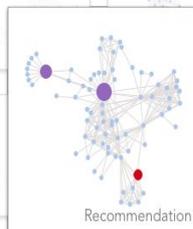
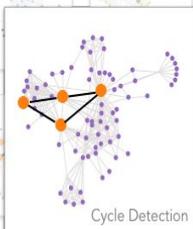
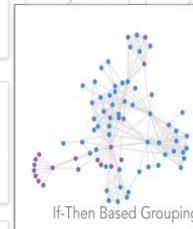
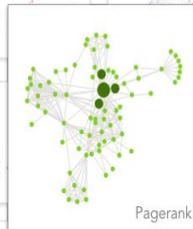
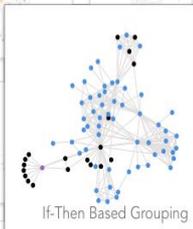
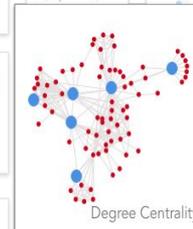
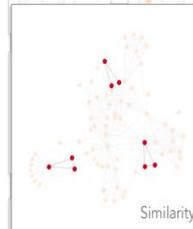
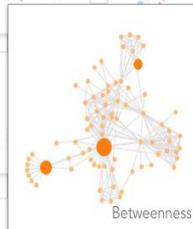
Recommend

Shortest Path

Connected

Centrality

Detection



MACHINE LEARNING

Graph Convolutional Networks (GCN)

Temporal Pattern Detect

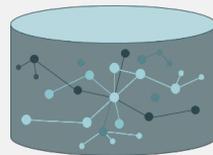
Louvain

Dependency Networks (RPN)

Markov Networks (RDN)

Probabilistic Models (PRM)

Advanced Fraud Analytics



PRESENTATION

LOGIC

DATA



EXPERO SOLUTION

Source Data

Structured and unstructured data (e.g. social media, raid data)
SQL, Triple Store, Hadoop, etc

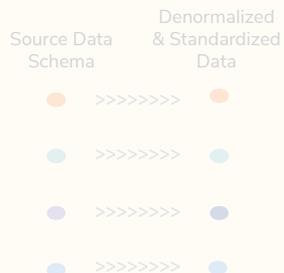


- PERSON**
Name / DOB / Products
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Name / DOB / Address
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Shipper / Phone Number
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GRAPH



Application Programming Interfaces (API)

Set of methods, tools, and protocols to build software applications

MICROSERVICE MACHINE LEARNING



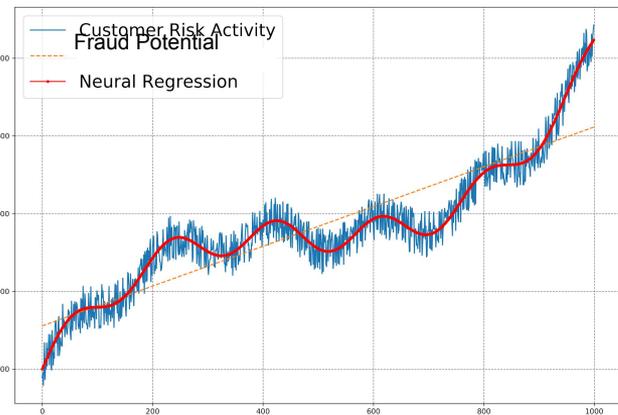
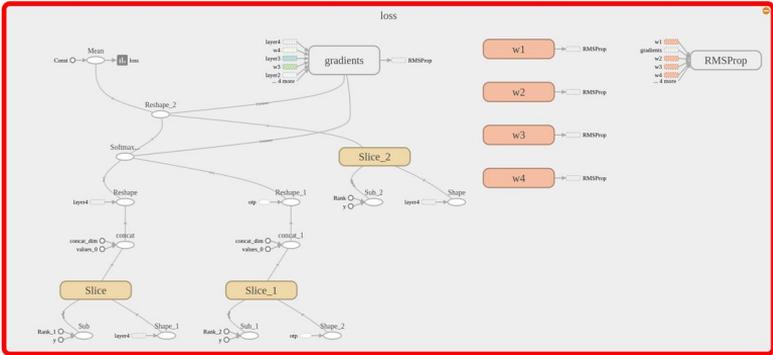
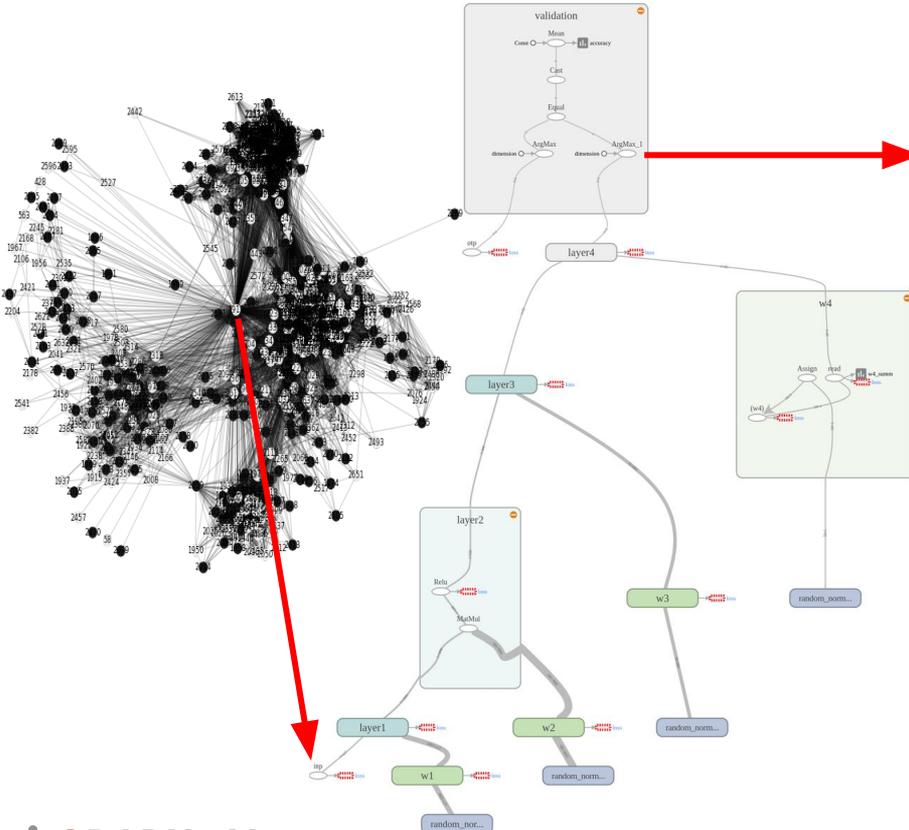
User Interface (UI)

Visualization tool enabling mission users to perform self-service data analysis

OPEN SOURCE & CUSTOM

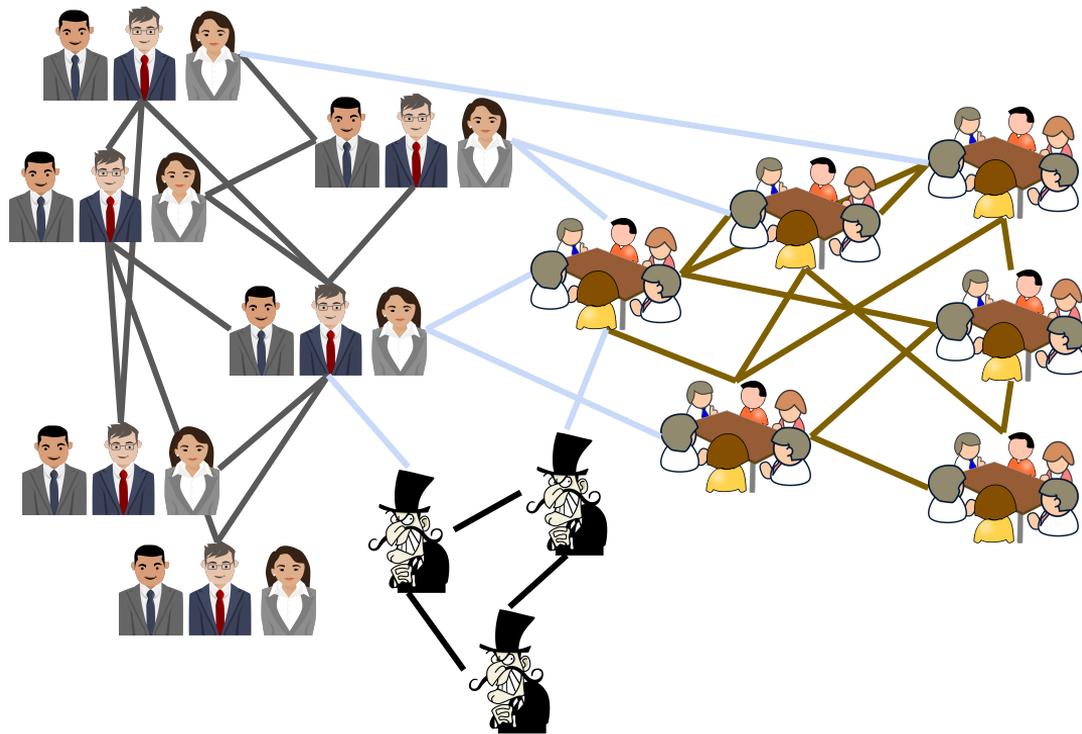


Identify 'Hiding' In plain sight and Attribution



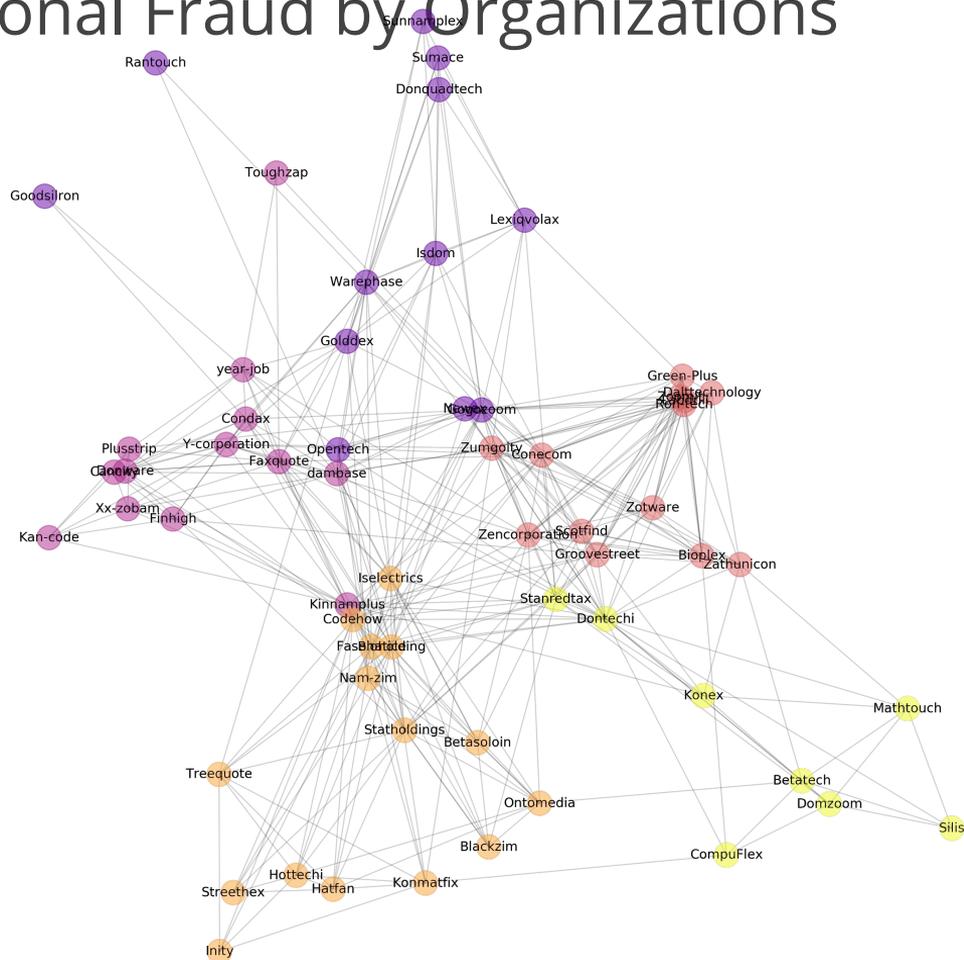
Company Identity Lookalikes

- Birds of a feather flock together
- Highly suspect companies look similar in high dimensional space
- Can we tease out these details using unsupervised learning?
 - Yes.
 - DBSCAN clustering
 - Kernelized PCA
 - Louvain communities



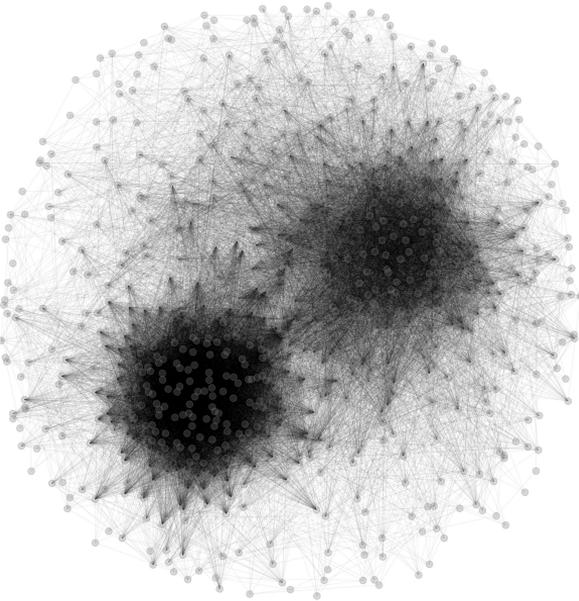
Fraud Detection - Transactional Fraud by Organizations

- Using topology metrics of subgraphs we can analyze organizational fraud
- Basically we look at various geometry measures of the graph
- Are the yellow businesses on the lower right section of this graph actually a money laundering ring?

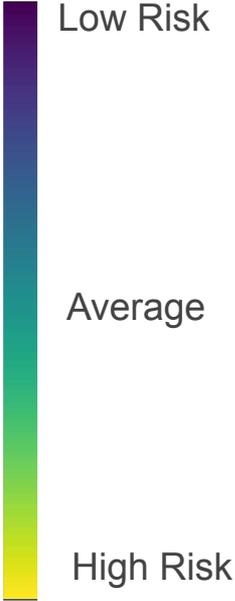
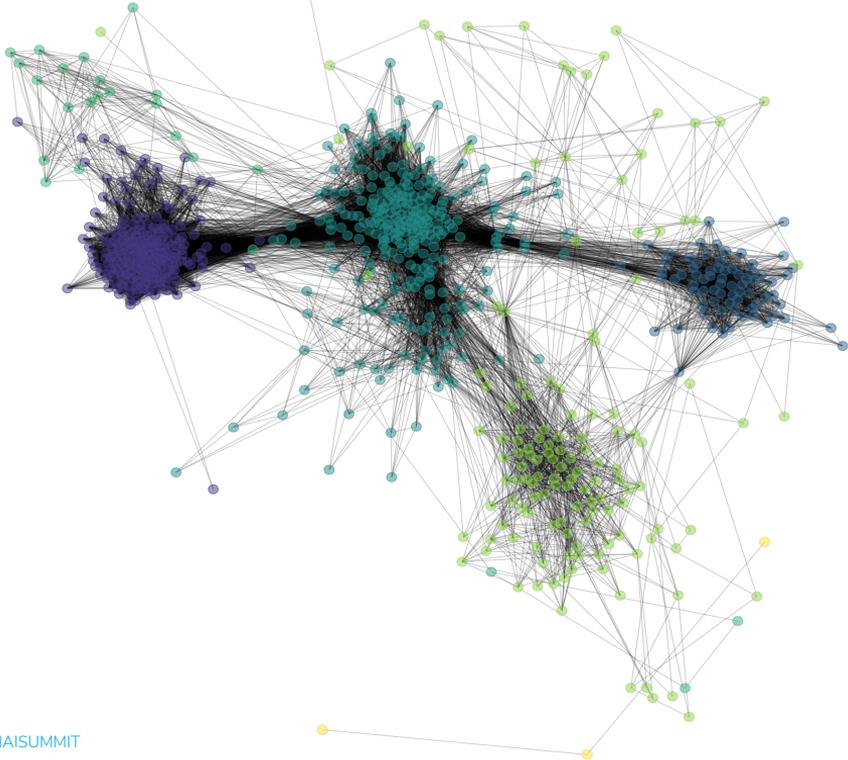


Fraud - Identity Lookalikes

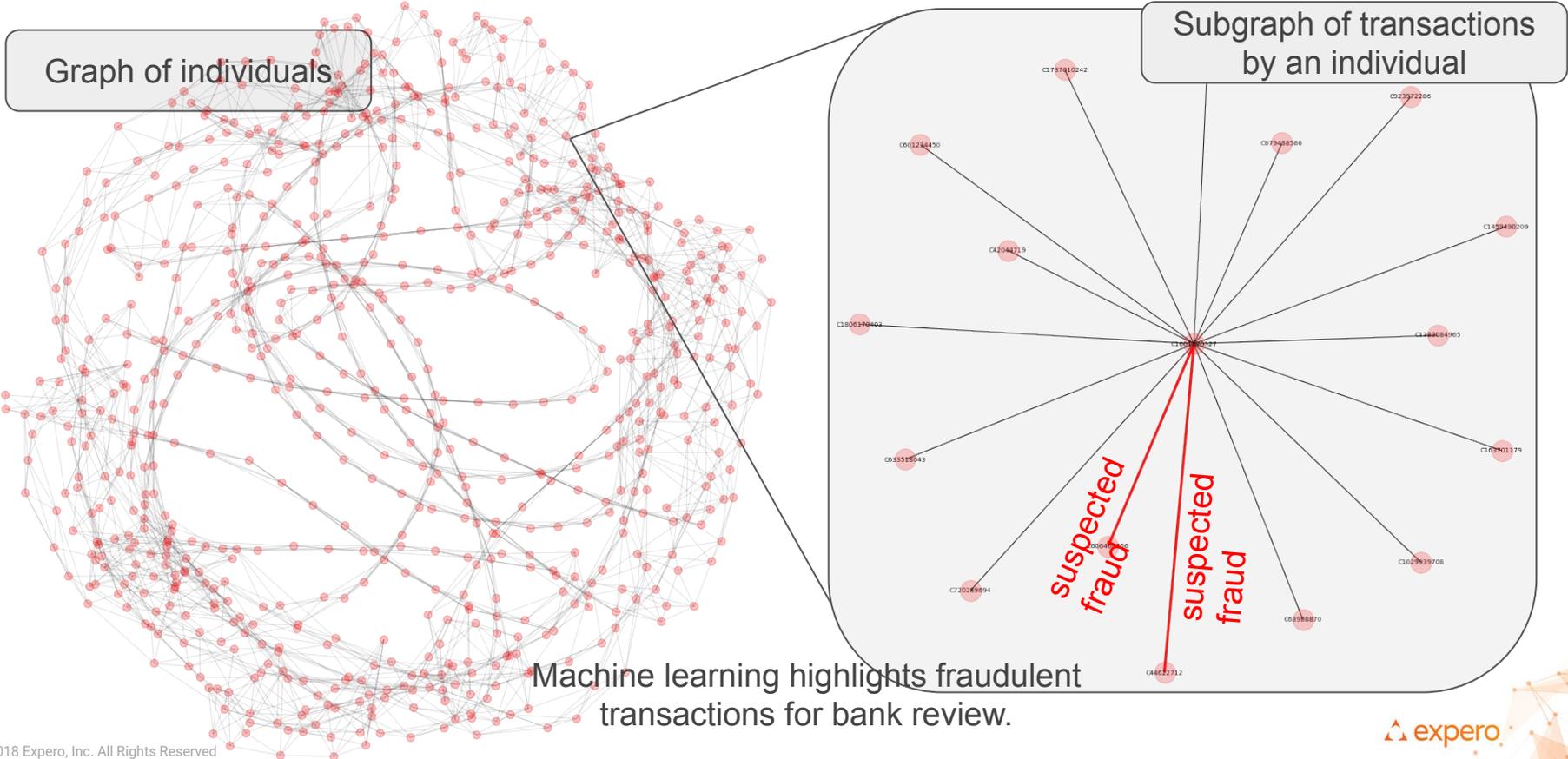
Unstructured graph of Unrelated Buyers

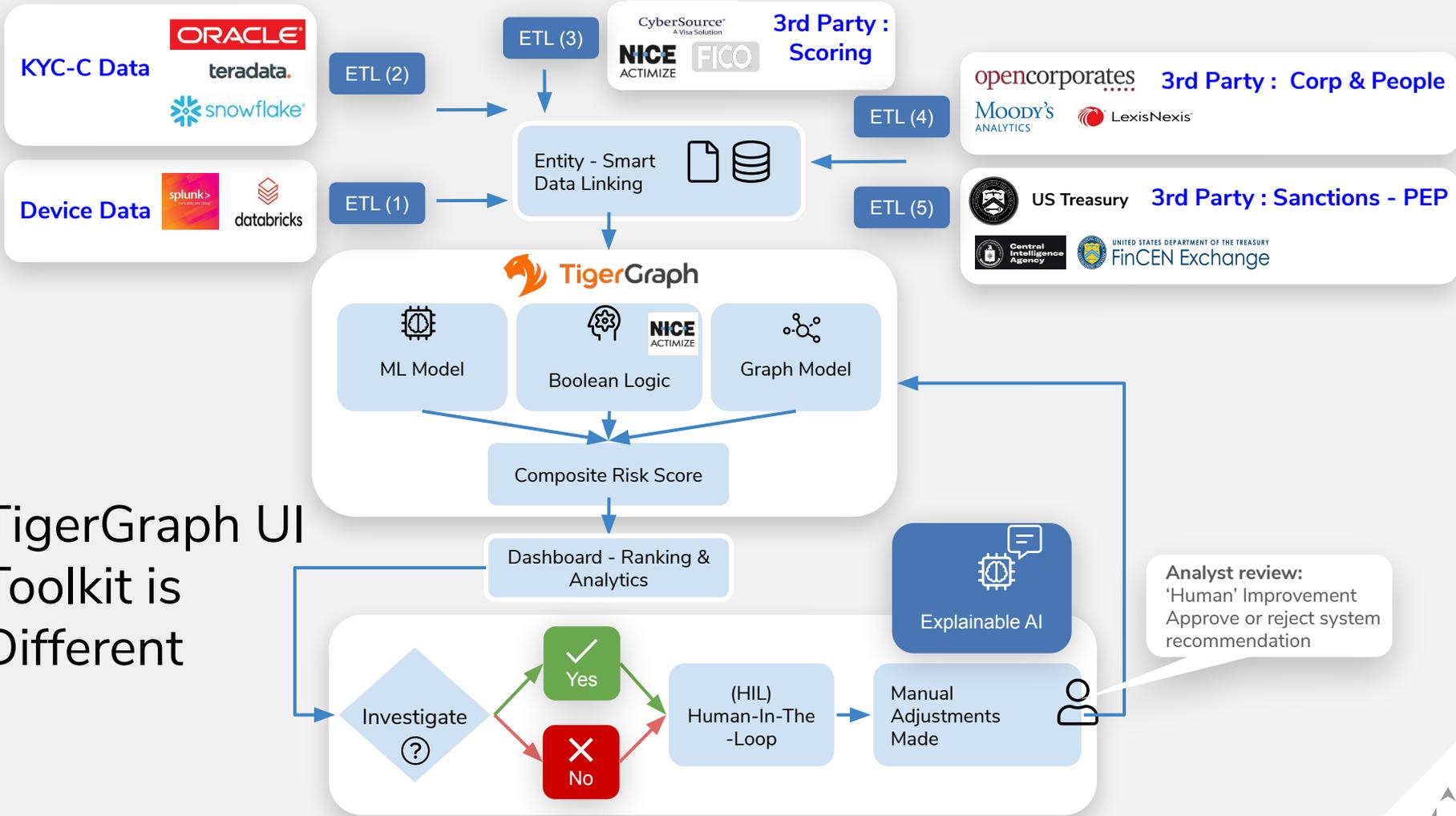


Same graph, automatically clustered by their history similarities by an unsupervised learning algorithm.



Fraud Detection - Transactional Fraud by Individuals

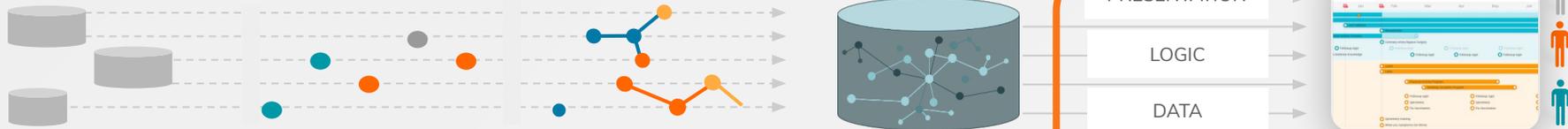




TigerGraph UI Toolkit is Different



Human In The Loop & Explainable AI



EXPERO SOLUTION

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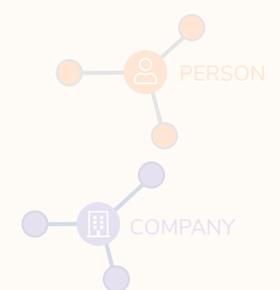
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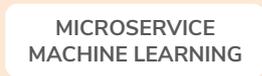
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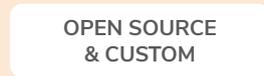
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GraphML Rationale = valuable, deep insights

Rationale for Quick Decisions (Explainable Graph + ML)



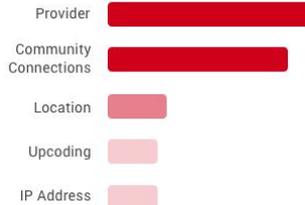
Workbench Recommendation

REJECT

Reviewer Decision

PENDING

Recommendation Rationale



Dashboard / Claims Queue / Claim 4340067280

ORDER DETAILS MAP SEGMENTATION NETWORK

Review Required ACCEPT REJECT

Workbench Recommendation
REJECT

Reviewer Decision
PENDING

Recommendation Rationale

Provider ██████████
Community Connections ██████████
Location ██████
Upcoding ██████
IP Address ██████

Connections to Risky Communities

Email	Connection Type	Transaction
jason.pattison414@email.com	Direct	234567891
jason.pattison416@gmail.com	Direct	345678901
jason.pattison420@gmail.com	2nd Degree	456789012
jason.pattison421@gmail.com	2nd degree	567890123
jason.pattison430@gmail.com	2nd degree	678901234

12 Emails

Phone Numbers	Connection Type	Transaction
+44 12 9222-5678	Direct	456789012
+44 23 9333-4444	Direct	567890123

2 Numbers



GraphML Visualizations = Efficiency Gains & Accurate Decisions

Simple & Powerful

Data Connections driven by Graph Algorithms save users time

- Louvain - Risky Communities & Bad Actors
- Alternate View

Connections to Risky Communities

12 Emails

Email	Connection Type	Transaction
jason.pattison414@gmail.com	Direct	234567891
jason.pattison416@gmail.com	Direct	345678901
jason.pattison420@gmail.com	2nd Degree	456789012
jason.pattison421@gmail.com	2nd degree	567890123
jason.pattison430@gmail.com	2nd degree	678901234

[MORE](#)

2 Numbers

Phone Numbers	Connection Type	Transaction
+44 12 9222-5678	Direct	456789012
+44 23 9333-4444	Direct	567890123

Similar Claims

Timeframe: 60 days | Recommendations: All

Recommendation	Reviewer Decision	Dispute	Claim ID	Provider	Email Connections	Phone	Location	IP Address	
REJECT	APPROVE		THIS Claim						GRAPH
APPROVE	APPROVE	Yes	234567891						VIEW ORDER GRAPH
APPROVE	APPROVE		345678901						VIEW ORDER GRAPH
REJECT	REJECT		456789012						VIEW ORDER GRAPH
APPROVE	REJECT		567890123						VIEW ORDER GRAPH
APPROVE	APPROVE		678901234						VIEW ORDER GRAPH

[SHOW MORE](#)



Augmenting Fraud Models with Colearning

Dashboard / Claims Queue / Claim 4340067280

ORDER DETAILS MAP SEGMENTATION NETWORK

Review Required

Workbench Recommendation
REJECT

Reviewer Decision
PENDING

Recommendation Rationale

- Provider
- Community Connections
- Location
- Upcoding
- IP Address

Claim
4340067280
Member ID 54323007
Amount 30,000.00

Show Providers

- 87 ID: 4237801019 JUN 15 2020 13:41 EST
- 85 ID: 5435278032 JUN 15 2020 10:08 EST
- 80 ID: 5728057890 JUN 14 2020 17:48 EST
- 80 ID: 5623792328 JUN 14 2020 12:42 EST
- 10 ID: 5170081234 JUN 13 2020 1:42 EST

Connections to Risky Communities

Email	Connection Type	Transaction
jason.paterson414@gmail.com	Direct	234567891
jason.paterson416@gmail.com	Direct	345678901
jason.paterson420@gmail.com	2nd Degree	456789012
jason.paterson421@gmail.com	2nd degree	567890123
jason.paterson430@gmail.com	2nd degree	678901234

12 Emails

Phone Numbers	Connection Type	Transaction
+44 12 9222-5678	Direct	456789012
+44 23 9333-4444	Direct	567890123

2 Numbers

Decision for this Claim?
 ACCEPT REJECT

Set up Pattern Alert

Your Decision for this Claim:
 ACCEPT REJECT

Why is this Claim being rejected?

- Shared connections between People & Devices
- IP Addresses across many locations
- High Transactional Volume
- Shared connections to high risk communities

+ ADD CRITERIA

Alert in the Future when Risk is: LOW HIGH

Apply Interventions if Alert Triggered:

- Freeze Claim
- Flag Claim
- Open New Investigation
- Attach to Existing Investigation
- Send Alert to My Team

SUBMIT CANCEL



Human-in-the-loop
Feedback Informs Model

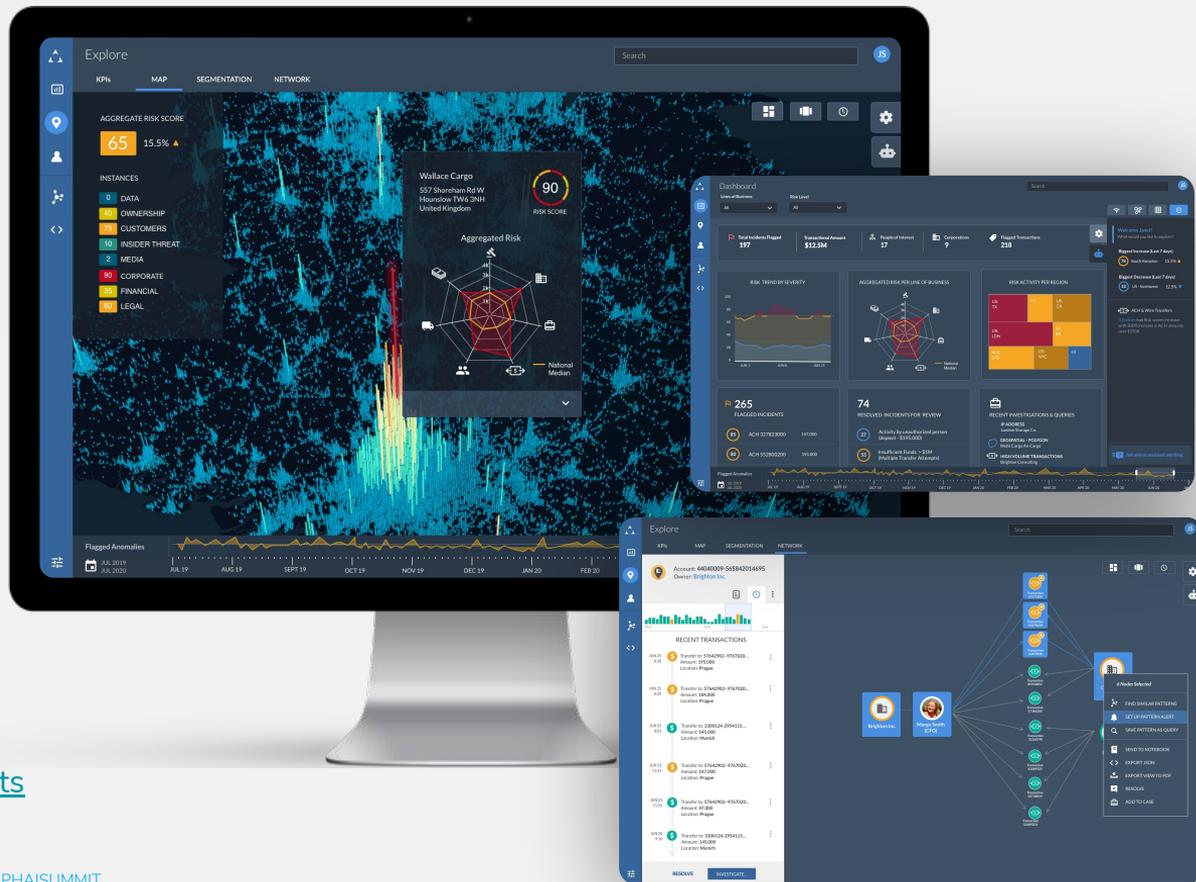


Model Informs the User



Where is Data Science Headed - AML Fraud

- Monitoring
- GraphML CI/CD
- Active Learning
- Interpretability



experionc.com/solutions/data-products

Topics

2021 (AML) :
What does the future hold?

2021 - What will the Role of ML, GRAPH & Humans be?

How - Graph + Machine Learning combine

(Graham Ganssle, Ph.D. - 25 min)

Anti-Fraud with Graph in Action

How does current Technology address these issues? Demos of Art of the Possible

(Scott Heath - 25 min)

Q&A

(5 Min)



Fraud Use Cases

Use Cases Drive Outcomes



BUSINESS CASES

- Anti Money Laundering (AML)
- Internal Fraud - Entitlements
- Credit Card & Transaction Fraud
- ID falsification & theft
- Cyber - Malware
- IoT & Asset Fraud
- Audit & Compliance
- Claim, Dispute Charges
- Law Enforcement - Prosecution



INVESTIGATION - VISUALIZATION

- Advanced Visualization
- Dependency | Network Pathing | Routing | Complex Visualization
- Clustering & Community Detection
- Geospatial 'Network Mapping'
- Real Time Data - IoT Systems
- Team based Workbench & Investigation



ML & ANALYTICS

- Patterns - Recommendations
- What If - Planning & Visibility
- Predictive & Analytics
- Scoring and Risk
- Audit & Compliance - Historical
- Targeting Similarities
- Decision Tree Analytics



AML FRAUD USE CASES

Key Drivers

Strategic Objectives

Example Use Cases

Roles / Persona Types

Business Value

● Increase Revenue (make money)
\$↑

● Decrease Costs (save money)
\$↓

● Mitigate Risk (protect money)
\$↔

● AML | Financial Crimes
● Fraud | Trx, Credit Card

● Cyber - Malware
● Migrate to Cloud

● Material Fraud Detection
● Audit, Regulatory

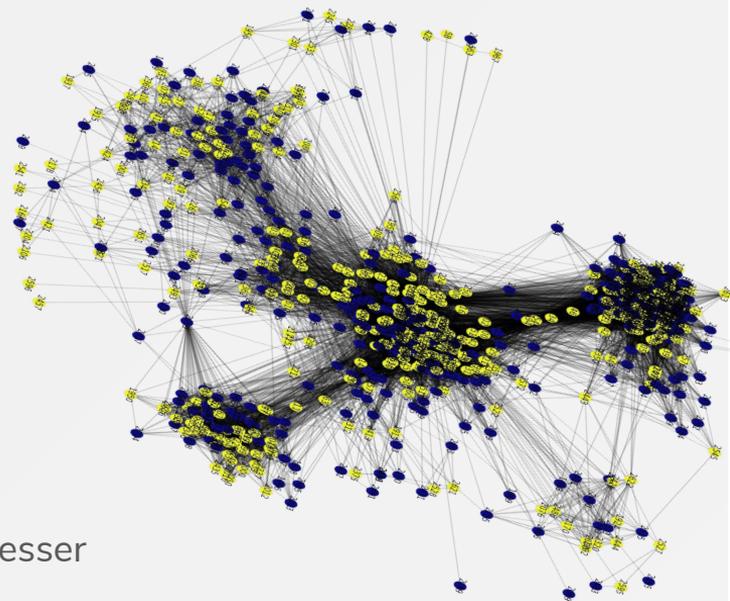
- Customer Intervention
- Real Time Credit Card |Trx
- False ID | Theft
- Fraud Rings
- Investigation - ACH, AML, CCard, etc
- IoT - Device
- Cyber - Security
- Analytics - Risk & Scoring
- Compliance | Governance - Data Providence
- Prosecution & Regulatory

Execs & Mgt
Teams: C360, Fraud
ML & Data Science
Audit | Compliance
Technical Teams

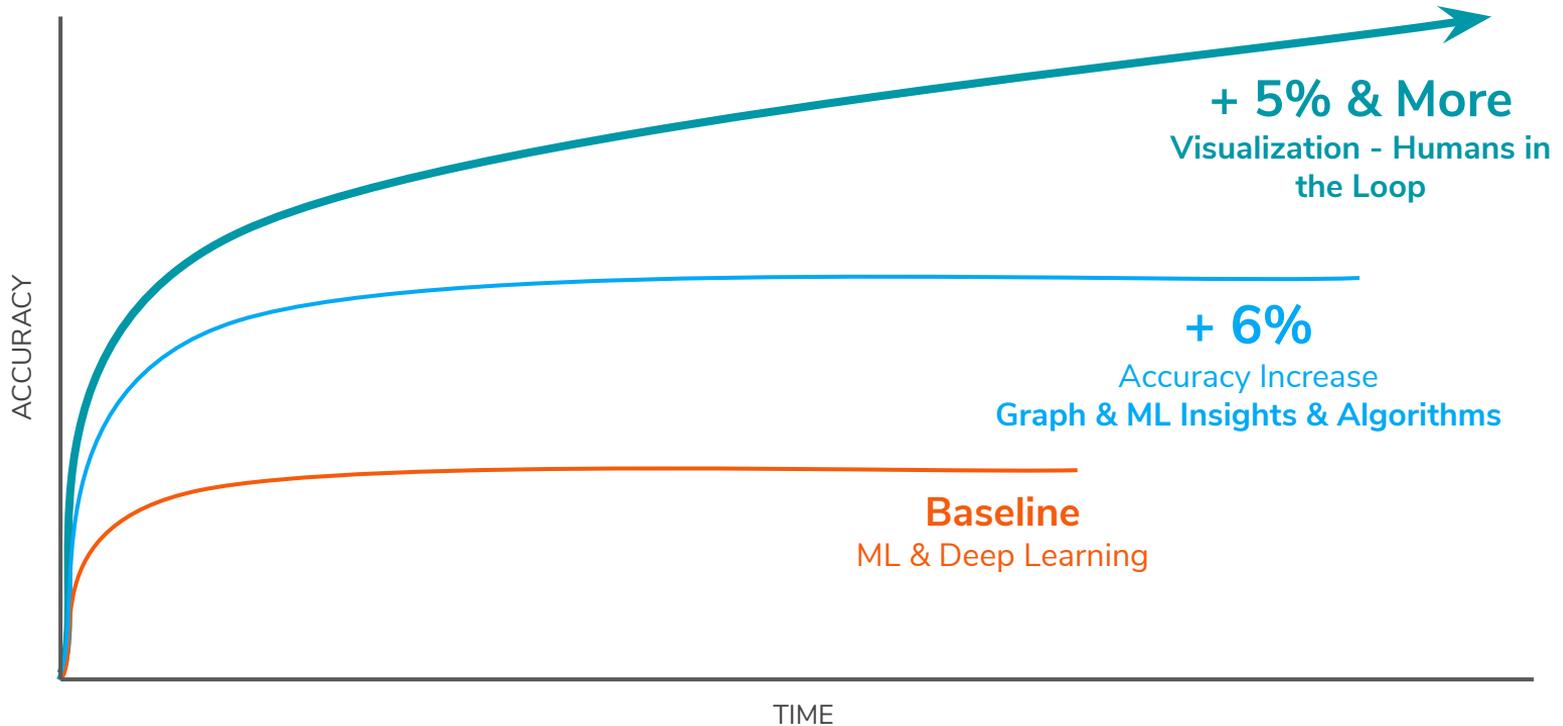


AML & Investigation Keys to Success

- **Increase Accuracy** - Human and Algorithms (e.g., False Positives)
- **Utilize My Current Tech** - May have 3rd Party (Actimize, Cybersource, etc) - Bolt on and make better
- **Decrease False Positives** - Capture and incorporate human instincts and expertise (esp for expert users)
- **Increase Speed & Efficiency** - More accurate and trusted outcomes (both automated & human)
- **Adapt to changes** - Alert and 'Quarantine' transactions on lesser seen cases, etc.
- **Continuous improvement** - A system that can learn, adapt & get better over time



Provide Accuracy Boost ~11%+



Examples: Human + ML + Graph = Increases Accuracy

AML Fraud Detection

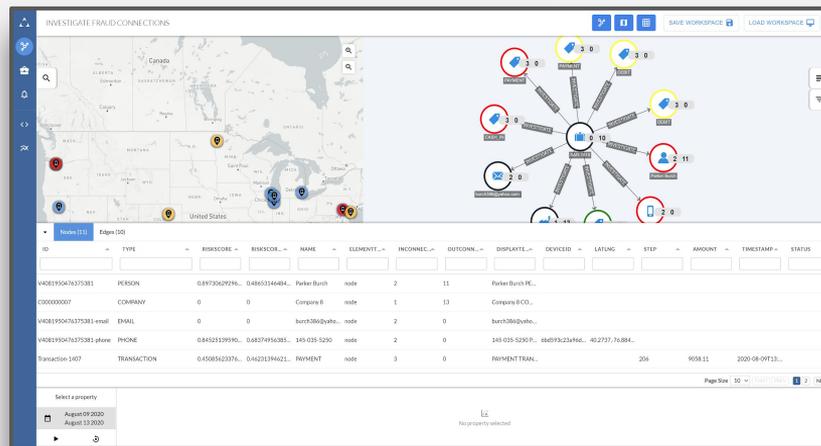


8.9%

Accuracy increase

experioinc.com/post/node-classification-by-graph-convolutional-network

Investigation Increase



6%

Accuracy increase

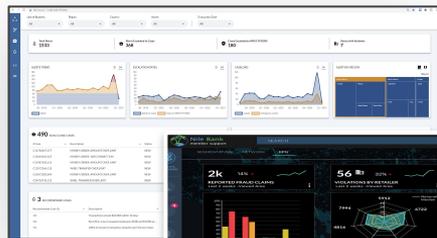
experioinc.com/post/opioid-fraud-detection-using-deep-embedding



Visualization - Functionality by User

INVESTIGATOR WORKBENCH

IT TOOLS



EXECUTIVES

Dashboards & Reports

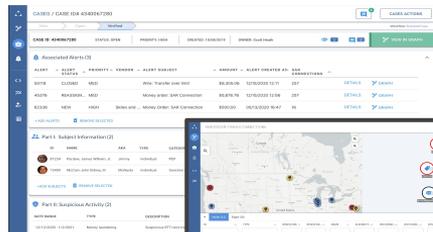
- Macro Trends
- Drill In Elements



LINE OF BUSINESS

AML Specific Dashboards & Reports

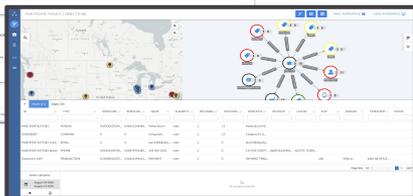
- Queue
- Numbers
- Open
- Status
- Audit & Compliance
- Closed



ALERT & CASE MGT

Alert & Case : Que & Detail

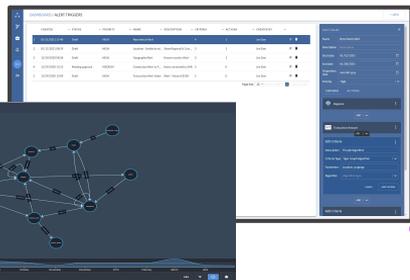
- Alert -> Case
- Auto Grouping
- Case Management
- Audit & Compliance



INVESTIGATIONS

Investigation Teams - Workbench

- Investigations & Teams
- Findings & Connectivity
- Graph Exploration



ALERT / RULES

Alert, Dashboard & Rule Management

- ML & Algorithms
- Complex analytics and 'scenarios'



ALGOS | PLATFORM

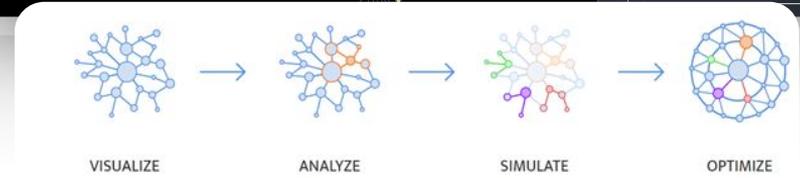
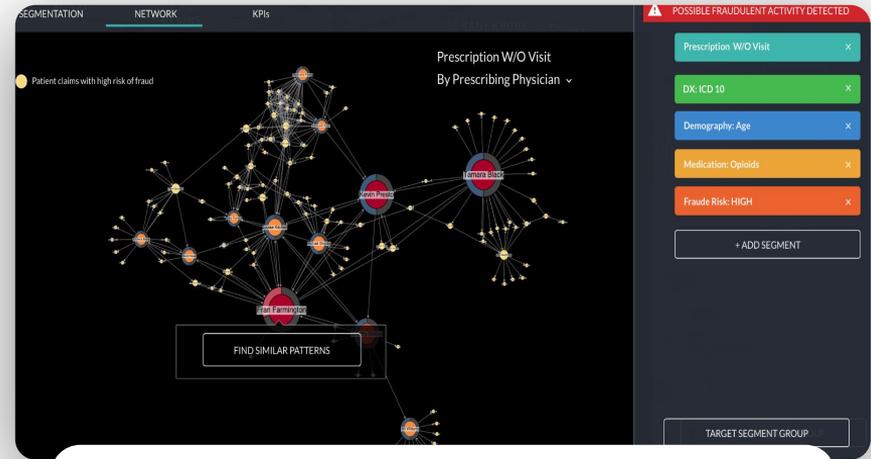
Graph & Management

- Data Models
- Graph Ops & Attributes

Fraud Process

Overview of Steps

1. **Find It - Intervene | Fraud ID** – ‘Real Time’ ID and Segmentation with ‘Holding’ for additional investigation
2. **Solve It | Case Management** – Deep dive and analytics for ‘flagged’ fraud. Adjudication investigators.
3. **Document It | Audit & Compliance** – Proactive management of cases & features for Audit | Compliance.
4. **Prevent It | Avoidance : Analytics** – ‘What If’ models and integrated analytics help predict potential fraud
5. **Repeat | Increase Accuracy & Learning** - Learn and evolve to predict the next types of attacks



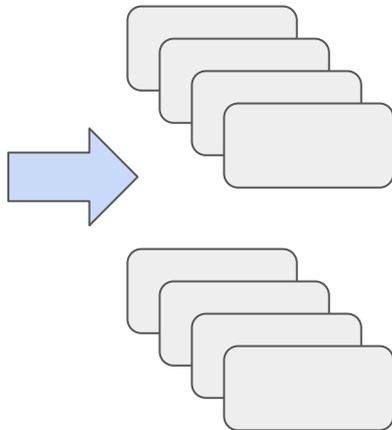
COMPLEX TEAM ENVIRONMENT

Business Units

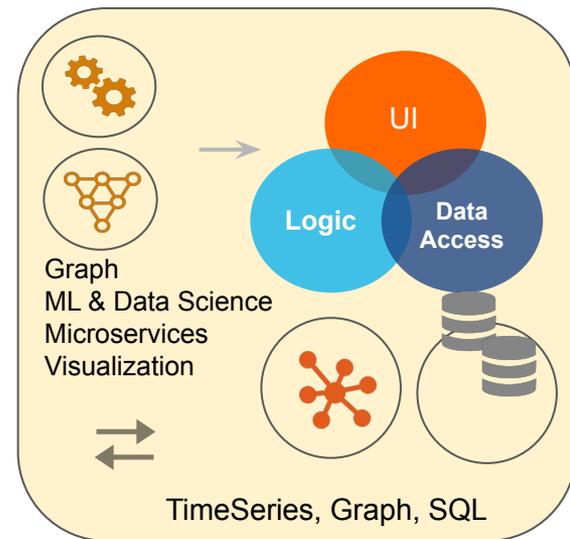
- Financial Crimes
- AML
- Credit Card/Trx
- Cyber
- Audit & Compliance
- Risk
- Sanctions
- Exec | Management

Separate Teams

- 'Pods' By Unit



- 2 - 3 Person Team's
- Lead Investigator
 - Data
 - ML



DATA

- Secure Ingest
- Data Provenance
- Atomic Data Security
- Each Data set - Security

TEAMS

- Team Security - Sandbox
- Scenarios - Test's ML & Logic
- Team Shared Learning
- Allow Pods to Share
- Management Roll Up
- Atomic, Group and Corp data share

CORP NEEDS

- Promote to SAR
- Share Case management
- Prosecution
- Pro-active alerts
- Predictive intervention
- ML & Explainability

Demo

- Rules / Alerts
- Dashboards
- Analytics
- Case & Alert Mgt

Line of Business: All | Region: All | Country: All | Stores: All | Transaction Type: All

Total Alerts: 1533 | Alerts Escalated to Cases: 368 | Cases Escalated to SA/CTY/BUO: 180 | Stores with Incidents: 7

ALERTS TREND (Line chart showing Alerts vs Cases from Q4-2019 to Q1-2021)

ESCALATION RATES (Line chart showing Alerts to Case and Cases to SA/CTY/BUO from Q4-2019 to Q1-2021)

CASELOAD (Line chart showing Cases and Average by case from Q4-2019 to Q1-2021)

ALERTS BY REGION (Table showing Alerts by Region)

Alerts	Escalated	Escalated	Escalated
Canada	10	5	2
USA	10	5	2
UK	10	5	2
France	10	5	2
Germany	10	5	2
Spain	10	5	2
Italy	10	5	2
Japan	10	5	2
India	10	5	2
China	10	5	2
Other	10	5	2

490 NON-CLOSED CASES

#Case	Description	Status	Priority	Detail
C13148607277	MONEY ORDER AMOUNT OVER LIMIT	NEW	HIGH	View
C1346566225	MONEY ORDER -SAB CONNECTION	NEW	HIGH	View
C13482382411	MONEY ORDER AMOUNT OVER LIMIT	NEW	HIGH	View
C13572364115	WIRE TRANSFER OVER LIMIT	NEW	HIGH	View
C61872382444	MONEY ORDER AMOUNT OVER LIMIT	NEW	HIGH	View
C54723735131	WIRE TRANSFER OVER LIMIT	NEW	HIGH	View

1245 NON-CLOSED ALERTS

Type	Description	Status	Priority	Detail
Wire transfer over limit	Transaction amount over the maximum (wire transfer)	NEW	HIGH	View
Money Order: Amount over limit	Carregador Lenovo 65W AC Adapter (BR) para mesa...	NEW	HIGH	View
Money order: SAB Connection	Machila Lenovo B210 Casual (até 15.6)	NEW	HIGH	View
Money order: SAB Connection	Carregador Lenovo 65W AC Adapter (BR) para mesa...	NEW	HIGH	View
Money Order: Amount over limit	Vin and Sons	NEW	HIGH	View
Money Order: SAB Connection	Ipach-Crist	NEW	HIGH	View

3 RECOMMENDED CASES

Recommended Case ID	Description
1.0	Transactions exceed \$20,000 within 14 days
5.0	Sent 20 or more transactions between \$500 and \$1,000
7.0	300% increase in transaction amounts over the last 14 days

INVESTIGATE FRAUD CONNECTIONS

Map showing locations in Canada and the United States.

Network diagram showing connections between nodes (PERSON, COMPANY, EMAIL, PHONE, TRANSACTION, PAYMENT).

ID	TYPE	RISKSORE	RISKSORE...	NAME	ELEMENT...	INCONN...	OUTCONN...	DISPLAYE...	DEVICEID	LATLNG	ST...
V4081950476375381	PERSON	0.89730629296...	0.48653146484...	Parker Burth	node	2	11	Parker Burth PE...			
C00000007	COMPANY	0	0	Company 8	node	1	13	Company 8 CO...			
V4081950476375381	email	0	0	burth386@yahoo...	node	2	0	burth386@yahoo...			
V4081950476375381	phone	0.84525195990...	0.6837495085...	145-035-5250	node	2	0	145-035-5250 P... 6b859k23a76d... 402737-76.884...			
Transaction:1407	TRANSACTION	0.45085623376...	0.46231994621...	PAYMENT	node	3	0	PAYMENT TRAN...			206

Alert Details

Name: New Bitach Alert

Description: Description

Start date: 01/12/2021

End date: 01/20/2021

Disposition: null/00/yyyy

Priority: High

CRITERIA: ACTION

Action 1

Action: Group Triggered events

Group By: Regional, Ascending

THRESHOLD: Transaction Amount, Ascending

CR: Threshold Algorithm, Ascending

ACTION: SAVE, SUBMIT FOR APPROVAL

3rd Party Data - Corporate, Sanctions & Data Enrichment

opencorporates

MOODY'S
ANALYTICS



There are many types of 3rd party data and are utilized for data augmentation and 'White' or 'Grey' lists for

- Assessments of Risk & Scoring
- Augmented / Enhanced Checking

CyberSource®
A Visa Solution

NICE
ACTIMIZE

FICO

3rd party data scoring and transaction with data augmentation

- Risk & Scoring
- Alert identification and Refining
- Augmented / Enhanced Checking



US Treasury



Central
Intelligence
Agency

UNITED STATES DEPARTMENT OF THE TREASURY
FinCEN Exchange

Government watch, OFAC sanctions and PEP Risk & Scoring

- Countries, Locations
- Persons & Companies - Augmented / Enhanced Checking

Data Connectivity & Visibility

Connectivity Crucial to Finding Fraud

Not all Graph data needs to be a network chart



Enhancing Tabular Data for Quick Decisions

Alternate Views Of Graph data

- Familiar
- Effective
- Fast

Explore / FBI Fraud Alert Warning

QUEUE MAP SEGMENTATION NETWORK

FBI Fraud Alert Warning
Cyber threat unauthorized wiretransfers overseas - London, Prague, Hong Kong... [MORE](#)

370 Transactions Potentially Associated with this Alert

46.6M Total Amount in Transactions

370 Transactions Associated with Alert

Enter Transaction ID or key terms

Timeframe: 7 days

Recommendation Type: All

Risk Score: 0 to 100

Recommendation	Reviewer Decision	Dispute	Transaction ID	Account #	Amount	Email on Account	Date	Fraud Community Connections
REJECT	PENDING		4340067280	54323007	299900.99	alishere@email.com	2020-08-17	
APPROVE	PENDING		4340237520	54260032	410000.25	alishere@email.com	2020-08-17	Indirect
APPROVE	PENDING		4340067252	42694010	158700.00	alishere@email.com	2020-08-17	
REJECT	PENDING		4340541254	42629022	459800.20	alishere@email.com	2020-08-17	Direct
APPROVE	PENDING		4342524369	42672912	125000.99	alishere@email.com	2020-08-17	
APPROVE	PENDING		4346279000	42647290	426700.60	all		
REJECT	PENDING		4340052356	42629120	526700.90	all		
REJECT	PENDING		4340052178	42691011	178000.25	all		
REJECT	APPROVE	YES	4340054370	42690209	102500.00	all		
APPROVE	REJECT		4340469000	42692034	218900.00	all		
APPROVE	APPROVE		4340522682	46591081	218900.00	all		
REJECT	APPROVE	YES	4344236589	42690107	350000.00	all		

Dashboard / Order ID# 12345679

Review Required

Recommendation
REJECT

Reviewer Decision
PENDING

Top Suspicious Signals

- Device ID: [REDACTED]
- Community Connections: [REDACTED]
- Phone Number: [REDACTED]
- Location: [REDACTED]
- IP Address: [REDACTED]

Transaction
27-29571-115
Amount: \$300,000

Device ID
sig0718c79d1161
Phone: +1-4512-555-1111

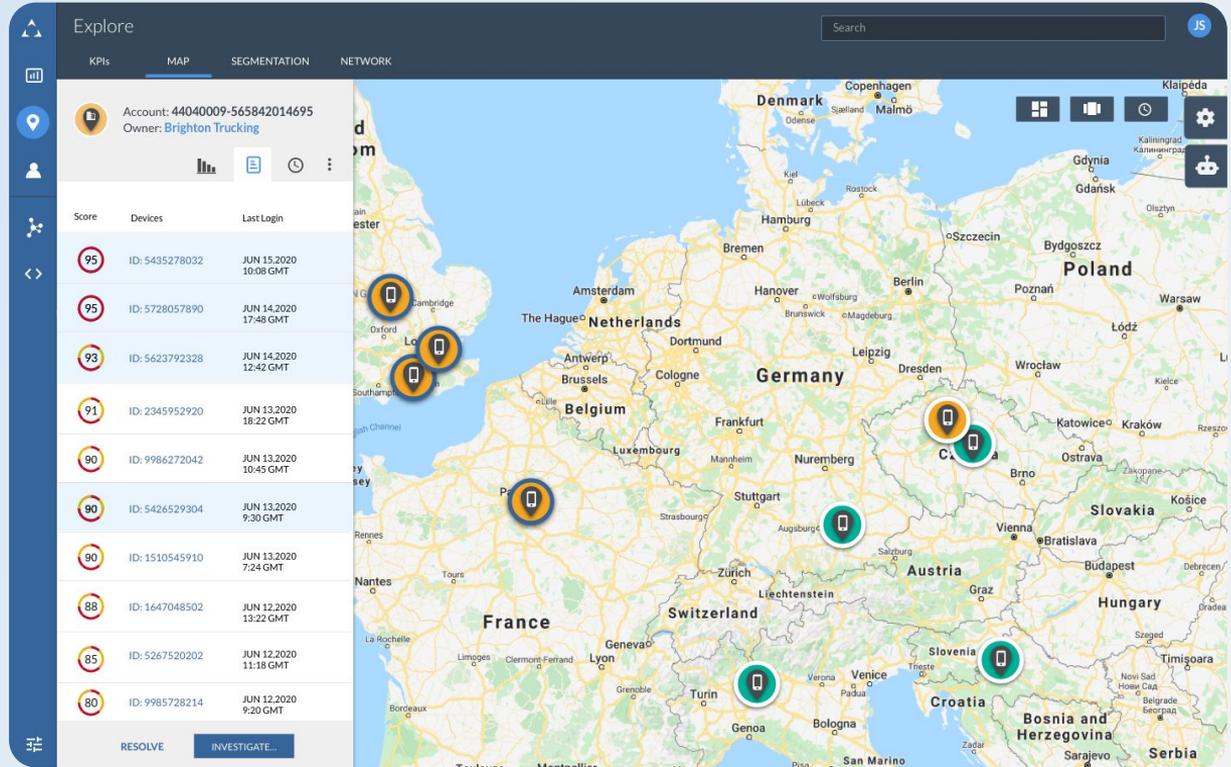
Email
robert.pattison1@gmail.com
Created: 30 min ago

Card Scheme
VISA CREDIT

Map
Bill Zepede: 60429-8791292397-670
Ship Zepede: 61737810023-665
IP Address: 177.65.110.180208.242

Geospatial Connections Transactions & Bad Actors

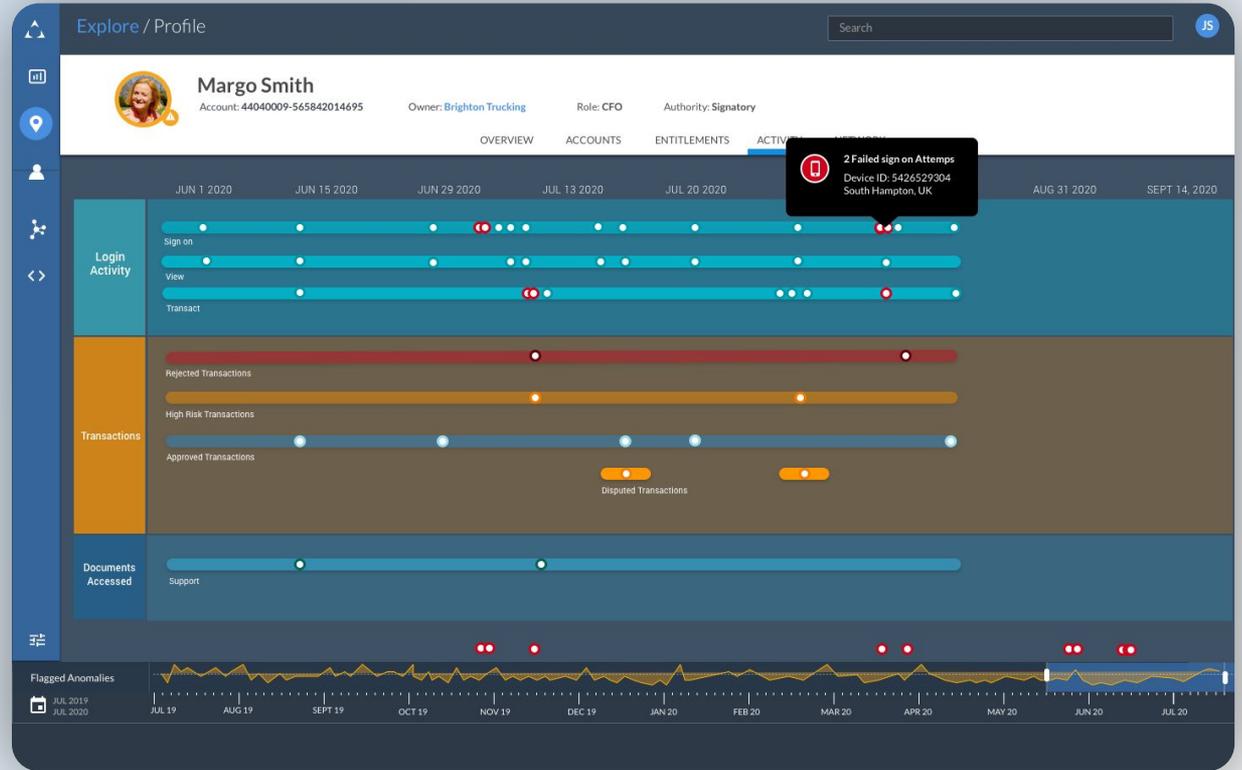
What locations
have high risk
transactions &
devices?



Temporal Visibility

Who and when did activities occur?

Recreate history -
What did we know and when?



More Info on TigerGraph Toolkits

FEATURES

TigerGraph Toolkits


Clarity
Insightful visualizations that everyone can understand


Simplicity
Point-and-click analysis of data


Versatility
Toolkits for a wide variety of use cases


Extensibility
Broad access by different teams across an enterprise


Easy Deployment
Intuitive integration with TigerGraph Cloud and Enterprise


Seamless Integration
Quick and intuitive deployment with TigerGraph Cloud and TigerGraph Enterprise



Customer 360 Toolkit
Develop a deeper and richer understanding of your customers' interests and needs and use these insights to recommend products and services

SEE DEMO >



Financial Crimes Toolkit
Detect and combat fraudsters, money launderers and other financial criminals faster and more accurately

SEE DEMO >



Supply Chain Toolkit
Accelerate planning cycle times, improve inventory usage and increase profitability

SEE DEMO >

General Information

<https://www.tigergraph.com/toolkits/>

Demo of Toolkit

<https://www.youtube.com/watch?v=a5muGR9PIjs>

Questions?



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HEAD OF DATA SCIENCE, EXPERO

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Scott Heath

FRAUD, GRAPH & ANALYTICS

✉ scott.heath@expero.com

